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Geomorphological index for studying active tectonics of mountains developed

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Washington, May 31 : Scientists have created a new geomorphological index for studying the active tectonics of mountains.

Active tectonics comprise of the most up-to-date deformation processes that affect the Earth's crust, resulting in earthquakes or recent deformations in the planet's faults and folds.

This phenomenon is analyzed in geology research carried out before commencing engineering works.

Depending on the type of project and the type of earthquake, the time period for evaluating active tectonics varies between 10,000 and 100,000 years for studies prior to beginning construction work.

Now, a new study, the result of the doctoral thesis of Rachid El Hamdouni, Professor of the Department of Civil Engineering at the University of Granada, defines a new geomorphological index called Relative Active Tectonics Index, which identifies four classes of active tectonics (from low to very high) and uses six geomorphological indicators.

"The main use of this new index is that it establishes a close relationship between this, the land forms, and direct evidence of active faults", explained El Hamdouni.

According to Jose Chacon Montero, Director of the Department of Civil Engineering at the University of Granada, in Sierra Nevada, areas with 'high' and 'very high' tectonic activity are areas with precipices, hanging valleys, deformed or hanging alluvial fans or deep and narrow gorges excavated near mountain fronts.

The indices are calculated with the help of Geographical Information Systems and teledetection programs in large areas, which identify geomorphological anomalies possibly related to active tectonics.

"This is really useful in southern Spain where studies on active tectonics are not very widely distributed", Chacon pointed out.

The study has focused on the Padul-Durcal fault and a series of associated fault structures on the edge of the Sierra Nevada, where over the last 30 years, seismic activity has been recorded by the Observatory of the Andalusian Institute of Geophysics and Prevention of Seismic Disasters.

Chacon explained that the map obtained with the new index depends exclusively on the land forms and divides the area studied into four parts, "of which two thirds of the total area is classed as having high or very high tectonic activity". (ANI)

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